Natural Gas Modeling Approach, Methodology, and Tools Workshop

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R.W. Beck Forecasts Gas Prices

- Fundamental model used to forecast cash prices at Henry—also have a basis differential model to 40 different price locations; updated quarterly
- Focus on capturing simple things that matter
- Forecast is establishing a good track record—Quick Summary is available at *www.rwbeck.com/energyforecasts*
- Using Lippman Consulting's supply model
  - looks at forecast production
  - offers timely data on actual production
  - can be aggregated by basin or by state
  - allows "what if" testing, such as new drilling versus depletion rates

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The Influence of Forward Prices

- How are forwards recognized in our forecast?
  - Forwards are considered as general market input, but the key to good forecasting is understanding why the spot forecast and forwards are different
- Experience and insight enables us to stand by our forecast, even when greatly different from current forwards
- Forwards are not good forecasts
  - Looking back, forward markets never foresaw $9.98 gas at Henry Hub in January 2001.
  - Likewise, forward market of late October showed $9.50 gas for December through March of next year.

Forwards Over Time

- 12-Month Strip can change radically over a short period of time.
- Table shows NYMEX prices on five dates within last six weeks.
- Which one do you use to "benchmark" your forecast?

	22-Oct	4-Nov	19-Nov	24-Nov	10-Dec
Dec	8.11	8.20	7.12	7.97	
Jan	8.99	8.90	7.79	8.64	6.84
Feb	9.50	8.98	7.89	8.71	6.96
Mar	9.46	8.61	7.68	8.36	6.92
Apr	7.42	7.36	6.78	7.25	6.45
May	7.09	7.07	6.63	7.05	6.38
Jun	7.11	7.09	6.66	7.02	6.42
Jul	7.13	7.12	6.70	7.08	6.46
Aug	7.16	7.14	6.72	7.09	6.49
Sep	7.13	7.10	6.70	7.07	6.46
Oct	7.15	7.14	6.72	7.09	6.48
Nov	7.46	7.48	7.00	7.36	6.77
12-Mo Strip	**7.81**	**7.68**	**7.03**	**7.56**	**6.60**

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Spot Prices vs. Forwards

- Spot prices are the cash market; purpose of forward prices is to hedge cash.
  - Whatever forward is today will change by the time the contract closes.
  - Open interest drops off very quickly, prices 24 months out often show zero open interest.
  - Most trading of a contract is done in the month before the contract closes; contract converges toward spot.
- When are forwards appropriate to use?
  - When you are actually going to lock in supply at a given price for future delivery.

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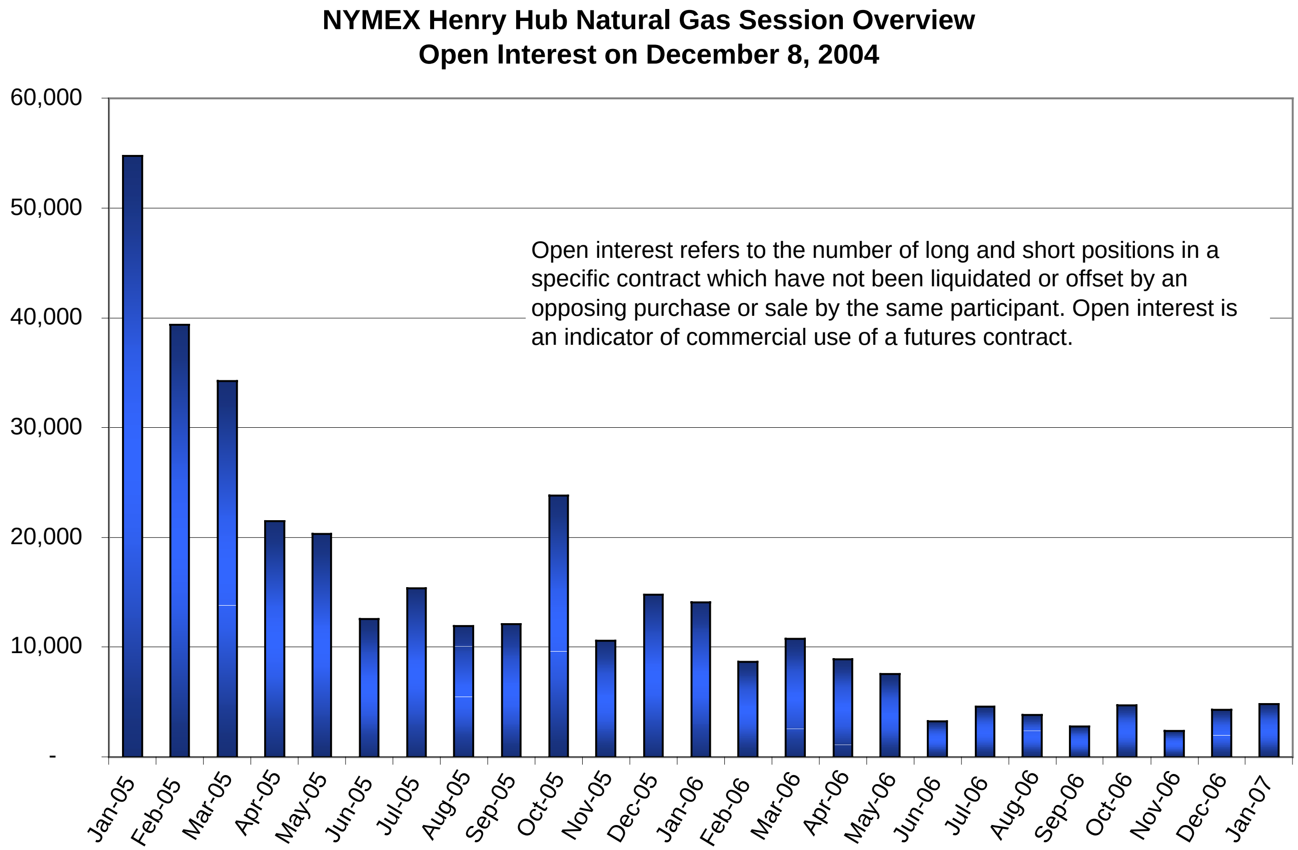
Open Interest



Who Trades in the Forward Market?

- Both commercial and non-commercial traders participate.
- Commercial traders are defined by the CFTC as those "engaged in business activities hedged by the use of the futures or options markets."
- Combination of long and short positions depends on broad look at the entire trading book; not necessarily on the expected spot price at the date of contract expiration.
- Our analysis shows that non-commercial trading activity is fundamentally different than that of commercial traders. More analysis is needed to determine price impact of this different non-commercial trading activity.

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Closing Thoughts

- Yes, there are forecasts of forward prices
  - Forecasts of forwards are used by traders to value potential trades.
  - Some traders accused of manipulating their price curves in order to increase contract value under mark-to-market accounting.
- When a spot forecast differs from the forward curve it is really telling you that forwards are going to change.
- Don't be intimidated when your spot forecast is different than today's forward -- as long as you understand your underlying logic, did good research on fundamentals and have a compelling view of the market.

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